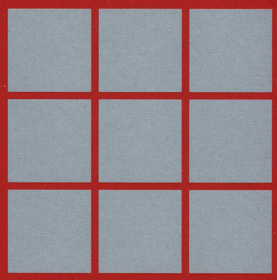


seriously powerful graphics

PAINTBOX® Esprit

PAINTBOX® F.A.T

product guide

QUANTEL

PAINTBOX®

seriously powerful graphics

1 **Seriously powerful graphics - Paintbox Esprit and Paintbox F.A.T**
- 1.1 Introduction
- 1.2 Operation
- 1.3 Painting
- 1.4 Brushes
- 1.5 Compositing
- 1.6 Stencils™
- 1.7 Graphics tools
- 1.8 Keyer
- 1.9 Colour manipulation
- 1.10 Transform
- 1.11 Macro and Sequence
- 1.12 Library management
- 1.13 Open networking

2 **Seriously powerful animations - Paintbox F.A.T**
- 2.1 Introduction
- 2.2 Creating animations
- 2.3 Assembling clips

3 **Paintbox Esprit configuration**
- 3.1 Features
- 3.2 Options
- 3.3 Technical specification

4 **Paintbox F.A.T configuration**
- 4.1 Features
- 4.2 Options
- 4.3 Technical specification

5 **Paintbox terminology**

Triumph of innovation

Paintbox is the finest television graphics system in the world, widely used to create elegant and informative graphics for news, weather reports, sports results summaries as well as station and programme idents.

Paintbox transformed television graphics when it was launched in 1982. Today, two completely new boxes offer broadcasters and facilities a compelling choice - Paintbox Esprit for affordable graphics and Paintbox F.A.T for dynamic animations.

Paintbox Esprit is a fully-loaded, no-compromise Paintbox, offering all the tools required to produce great graphics.

Paintbox F.A.T (Full Animation Toolset) is the essential tool to produce high quality animated graphics at speed.

Into the future

Paintbox works with the highest non-compressed 601 quality and is also DTV-ready.

Paintbox delivers the 16:9 capability required by any broadcaster facing the digital revolution. Paintbox's versatility also extends to new media, generating graphics for web pages and DVD (Digital Versatile Disk) productions.

About this Guide

This Product Guide outlines examples of the systems' capabilities, but artists can use any Paintbox tool in the way that gets the best result. Because Paintbox F.A.T contains all the powerful features of Paintbox Esprit, the section focusing on still graphics uses the term Paintbox to cover both systems.

The Guide is not intended as a manual, but aims to provide an up-to-date reference for the latest features. If you have any comments about this Product Guide or want more information about Quantel's products and training, you can e-mail Paintbox@quantel.com, find the Quantel website at www.quantel.com or call your local office for details.

1. **Seriously** powerful graphics

Section 1

1.1 Introduction

Best graphics at affordable prices

Paintbox is the graphics system with the highest specification in the world, the essential starting point in the broadcast graphics chain.

With ever-more channels starting up each year, eye catching graphics are vital to stand out and stay ahead. The highly affordable price tag of Paintbox Esprit means any station or facility can now put Paintbox to work.

Power of the network

Stations are moving towards networking as an image exchange medium, rather than traditional video switching technology. Recognising broadcasters' needs, Paintbox Esprit has been engineered for network application with video input and output hardware offered as an option rather than built into the system.

Complete graphics power: Paintbox F.A.T (above) and Paintbox Esprit (below)

1.2 Operation

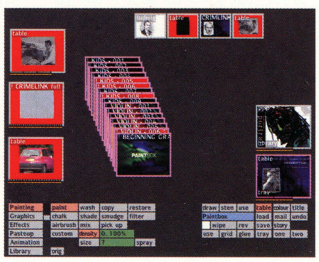
Controls

The key to Paintbox's natural user interface is the pen and tablet control which is easy to learn and use. The host of artist-centred features are accessed through an easy to navigate menu system using the pen, keyboard and Grip™ hand unit. The Grip offers shortcut commands and a fast way to scroll through storyboards.

Layout Table

The Layout Table allows images to be selected from the library and placed on the table for quick access. The Layout Table is available from any menu with a Grip trigger-click. Designers can load all the elements from the library for a particular job or set of jobs on to the Layout Table. They can then access all of these elements instantaneously.

Layout Table



Elements on the Layout Table can be colour-coded and grouped for easy identification and may be titled or re-titled. Items can be mailed across the network or to other stations directly from the table. The Tray is a buffer which facilitates the transfer of images from the main Painting store to the Layout Table. Images in the Tray can also be used as background images for Restore (see Painting 1.3).

1.3 Painting

Responsive commands

The pen is pressure-sensitive, faithfully responding to the designer's actions. By varying the density and width of a stroke according to pressure applied, artists mimic a real pen or brush. The colour of the brush can also vary as more pressure is applied which is useful for creating distinctive effects. Regular patterns or the irregularity of a natural 'look' - often lacking in digital systems - can be achieved with modulation and random tools. For detailed work, artists can also zoom down to pixel level in realtime.

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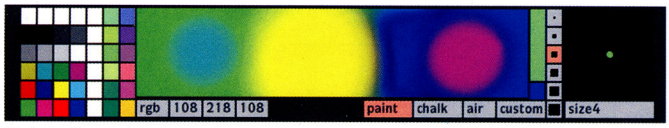
Seriously powerful graphics - continued



Colour Controls

Pick Up and Vary

Pick Up allows colours to be picked from the image each time the brush is applied.

Because each stroke uses the pixel colour from where the stroke started, this is a valuable aid for retouching. Vary, when selected, will continually adjust the brush colour to match the image during a stroke. This is ideal for giving the picture a 'painted feel'.

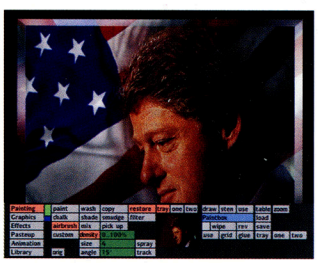
Colour control

When the Palette is on-screen, colours can be picked up from an image and mixed with other colours and then deposited in 'pots' for future use. Palettes are stored in the library and may be copied between Quantel machines. The Palette is also used by the system as a control for Colour Map and brushes with random or modulating colours. Colour Map enables an image to be altered depending on the colours in the Palette and is often used to subdue a detailed background. Paintbox Esprit has a full 8-bit YUV colour range providing access to over 16 million colours. Colours can also be set using RGB, YUV or HSL colour spaces.

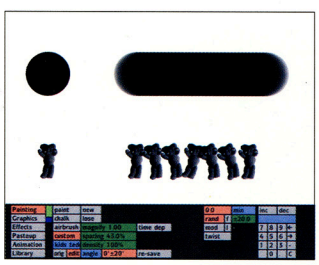
Restore

Restore allows parts of a background image to be restored through a foreground image using any brush. Because Restore is pressure-sensitive, a very fine mix between foreground and background can be achieved.

Restore



User-definable brushes



1.4 Brushes

Realtime

The designer has the choice between Paint, Chalk, Airbrush - which are all round - or Custom Brushes which can be any shape defined by the user. The brush defines the shape and 'profile' by which paint is mixed with the picture. When painting, the brush stamp is repeatedly deposited in the selected colour to reproduce the brush stroke, accounting for applied pressure.

Interactive

Brushes can be space dependent - 'stamped' down on the picture every few pixels; or time dependent - a new brush stamp is deposited every few milliseconds. Just like a real airbrush, Paintbox's airbrush is time dependent. If you hold the pen stationary, the 'paint' on the screen builds up into a solid blob.

User-definable

Custom brushes can be created by the designer using any shape, for example a wedge shape could be used to produce a calligraphy brush. Attributes, such as whether the brush is time or space dependent, are definable. Brushes need not be a solid shape - any black and white image, station logo or even a picture, can be turned into a brush.

1.5 Compositing

PasteUp

The PasteUp menu provides access to a comprehensive range of multi-layering tools to define an area to be cut, make the cut and paste the resulting 'cutout'. Up to 99 layers, or cutouts, can be active at any one time. Each cutout can be selected either by a pen tap or by keying in its number. Each cutout is independently adjustable and can be manipulated using any one of the following controls:

■ *Style*

Solid, drop shadow, outline, surround and emboss styles can be applied to each cutout

■ *Opacity*

Controls the cutout's transparency from 0% (transparent) through 100% (opaque)

■ *Size and Position*

Controls the size and position of the cutout

■ *3D perspective*

Allows the cutout to be rotated and positioned in 3D space. Corner Pinning allows a cutout to be set in 3D space to match a background by defining the locations of its corners

■ *Contour*

Provides picture bending controls to enable the picture to be pulled about like a rubber mat (bend), wrapped into a cylinder or sphere (wrap), rippled like the surface of water (ripple) or turned like the page of a book (turn)

Attach and Global

Attach provides a quick, accurate way to join cutouts together, either by their edges or by their centres. For example, six square cutouts can be joined by the edges to form a cube. One of the cutouts acts as the 'master' and if this cutout is moved, the attached cutouts follow. Attach can also be used to add a custom drop-shadow to a cutout. For example a text element can be copied, blurred and reduced in opacity and then attached to the main text element by its centre to become a dropped shadow.

Global provides a means of controlling a group of cutouts as a single object, for example to change the size and position of all cutouts together.

1.6 Stencil™

A versatile tool

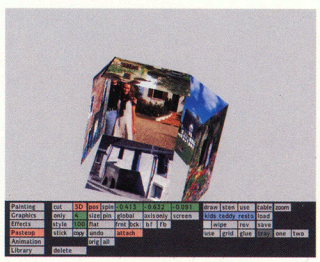
Stencils are one of the most commonly-used aspects of Paintbox. The Stencil is effectively a control plane for the image. There are three main uses of a Stencil:

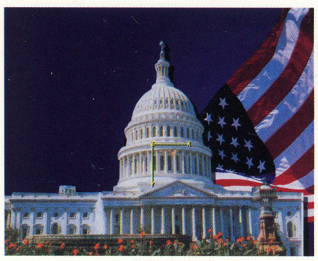
■ Protecting areas of the image from a process, for example a Stencil may be used to protect the background of an image when working on the foreground, or perhaps to isolate particular detail of an image for colour correction. In this way a Stencil operates like a mask.

■ Defining a boundary for a cutout, for example a Stencil may be drawn around a head and shoulders which may then be cut from the image and used as a cutout.

■ Controlling the attributes of Transform (see Transform 1.10).

Attach and Global





Stencil

Drawing a Stencil

Any of the painting features can be used to paint a Stencil; the airbrush is excellent for soft-edged Stencils and for intricate shapes. Graphics tools can also be used to generate Stencils - as well as using rectangles for covering large areas, curves may be used to define the outline of a fairly regular shaped object. Graduated rectangles - vignettes - may also be used to generate a Stencil and then this could be used to blend two images for a seamless result.

Automatic Stencil generation

The Hicon function will generate a Stencil from the luminance or black and white information in a picture. This can be useful if a logo is grabbed from a video input and then needs to be used in various compositions.

Hicon allows the black and white thresholds to be varied to compensate for images which are not fully black and white. For more intricate work, the keyer provides an extensive set of tools for Stencil generation (see Keyer 1.8).

1.7 Graphics tools

Shapes and Lines

Paintbox contains a host of graphics tools which enable efficient creation of illustrations, graphs and charts. Several geometric shapes are available, such as circles, rectangles, ellipses and lines and each can be defined visually or numerically. Lines can be generated as parallel lines, radial lines or connected lines.

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All geometric shapes may be generated as an outline or as a solid. For example radial lines can be used to generate a pie chart and, with numeric entry to aid composition, an accurate result can be achieved in seconds.

Curves

Curves generates a multi-point flexi-curve. Controls for tangent, straight and lock for each individual point mean that the most complex shapes can be generated. Curves have many applications including drawing graphs and outlining shapes for Stencil generation.

Grids

Grids provide a means to control the positioning of graphic elements and cutouts. They can be customised to suit the design, and the addition of tabs within the grid allows accurate positioning of text elements for graphics such as bulleted lists. Customised grids can be saved in the library and recalled for future use.

Typography

Paintbox comes with 1,085 vector-based Bitstream typefaces. Any Unicode TrueType font can also be imported and used alongside this built-in text library. Of course elegant calligraphy can be achieved with a few strokes of the pen.

Paintbox's typography tools provide all the necessary controls for text-based design. Multi-line text entry is possible and any number of typefaces may be used in the composition. Font, size, position and kerning of any line, word or character may be set independently. The use of grids allows accurate alignment to a template for maintaining generic styles. Once the text is composed, it can be stuck to the background.

For more intricate designs, the text can be used as a cutout and positioned in 3D space. Any of the effects in Pasteup can be applied to text.

Curves

1.8 Keyer

Point and shoot keying

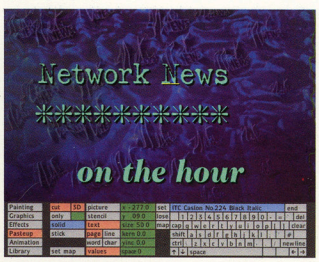
Paintbox's keyer provides a sophisticated 'point and shoot' chroma luma keyer. This provides a quick and simple method for generating a Stencil around objects shot against, for example, a blue-screen background.

A single pen-press on the blue of the background will generate a Stencil for all areas of that colour. With a few more presses to allow for lighting variations, a complete Stencil can be generated in a matter of seconds. A softness control allows the key edge to be softened for a more realistic effect.

Detailed keying

Numeric controls are available so the high, low and softness values can be entered for the Y, U and V channels independently. Once a Stencil has been generated, Grow can be used to expand or contract the Stencil boundary eradicating spill - the fringing sometimes seen around a blue or green screen key. Blur can be applied to the Stencil to provide an overall softness in order to generate a shadow matte to accompany a cutout.

Typography



1.9 Colour manipulation

Wash

This feature, applied by brush or by Graphics functions, changes the colour of the area where it is applied to the current colour of the brush. Luminance information (detail) is unaffected. Wash is a basic colour correction facility and is most often used to apply a tint, such as sepia, to the entire image.

Colour fettle

Three input to output graphs are provided; Y (luminance), Cyan to Magenta and Yellow to Blue. Manipulation of these colour fettle graphs allows the amount of each particular colour within the image to be increased or decreased. For special effects the graphs can be inverted, producing a negative, or simply pulled around at random to produce some stunning colour effects.

Corrector

The Colour Corrector provides the most subtle and controllable of Paintbox's colour correction facilities. Numeric controls provide adjustments for RGB gain, RGB cast, brightness, contrast, saturation and hue. Designers can increase the contrast and saturation to enhance a shot or completely change the colour of an object by rotating through the hue wheel.

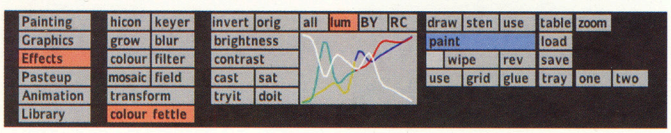
By using the Colour Corrector in conjunction with the Keyer (see 1.8) it is possible to make adjustments to specific areas within an image without affecting anything else, for example adjusting the colour of one car in a full showroom.

1.10 Transform

Creative tools

Transform offers unique picture manipulation possibilities. It works by breaking the picture into its component parts and then redrawing it in 'stamps' of the currently selected brush.

Colour fettle



The designer has control over the pitch, size, offset, dither (randomness) and density of the brush stamps. A concentric ring brush can produce a frosted glass effect, a V shaped brush produces a knitting effect and a hexagonal brush a tapestry effect.

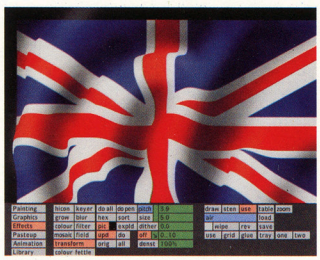
Adding Texture

A Stencil can be used to control Transform's attributes - size, offset, dither and density - and if a Stencil is generated from an image such as water or crumpled cloth, this can be used to effectively map the contours of the texture image on to a picture. Transform also offers the option of redrawing the image over a solid colour background, or over the original image. If the original image is used as the background, subtle effects such as the simulation of rain on a lens can be produced.

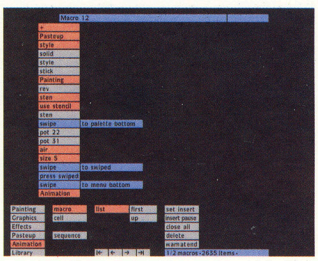
1.11 Macro and Sequence

Efficient recording

Macro and Sequence enable efficient completion of repetitive tasks and can be recorded to the



Adding texture



Recording

library. Sequence records tablet information and is ideal for recording some simple menu operations, but for more complex functions Macro is used. Macro generates an editable list of functions and is therefore easy to amend. Once recorded, Macros can be assigned to function keys on the keyboard for fast access.

1.12 Library management

File cards

Paintbox has one of the most comprehensive library management systems available. Each item within the system has an associated file card which provides detailed information about the image. This includes:

■ *Title*

80 characters (user-definable)

■ *File type*

Picture, cutout, stencil, grid, palette etc. (automatic)

■ *Owner*

20 characters (user-definable)

■ *Date*

FILE save date (automatic)

■ *Number*

10 - 9999 optional (user-definable) [for on-air replay]

■ *Category*

80 character (user-definable)

■ *Description*

255 character free-flow (keyword-searchable)

Files can be copied on to magneto optical (MO) disk via Open Picturenet® for transfer or archive purposes. Within an Open Picturenet network it is also possible to copy files to other connected systems or to the Picturebank server.

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Seriously powerful graphics - continued

Fast searches

Once the image has been saved and the file card information added, locating images is fast and simple. Any words can be searched within the title or any of the user-definable fields. Part word searches are accepted. Date searches allow searching for a specific date, between dates or before and after dates. Once images are located, the designer can browse through thumbnails for easy identification. Caching ensures super-fast scrolling through the library of browse images. The file card information is contained in the file header and remains with the file at all times regardless of its destination.

Sophisticated searches

Keep and Lose allows the search to be refined so that if, for example, a search for 'Travel' located 100 entries, this could be refined by Keeping 'India', which would keep all files in the buffer with 'India' in the title. This search could be narrowed by Losing 'Delhi'. The result would be all files in the library with 'Travel' and 'India' in the title but not those containing 'Delhi'.

Boolean search example 1

Searching for 'pres' will find

President Clinton

Presidential palace

but not

Express train

Boolean search example 2

Searching for 'pres c' will find

President Clinton

but not

Presidential palace

Express train

Boolean search example 3

Searching for 'pres & clin' finds

President Clinton

Presidential palace

Bill Clinton

Clinical

Wildcard search example 1

Searching for '??pres' will find

Express

Impression

but not

President Clinton

Compression

Wildcard search example 2

Searching for '*pres' will find

Express

Impression

Compression

but not

President Clinton

1.13 Open networking

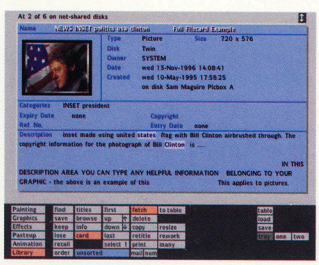
Efficient working

Open is a suite of Quantel technologies which provides integration between Quantel systems and third-party systems for image exchange, control and programming. Open Picturenet is part of this networking technology providing access for both Quantel and third-party equipment within the broadcast environment. Paintbox Esprit and Paintbox F.A.T have Open Picturenet as standard and this allows close integration of graphics, video design, editing and transmission.

Massive storage

Picturebank provides massive centralised storage for all connected equipment. Quantel's Remote MO also offers shared access to a removable drive with multiple simultaneous access plus freedom to locate it anywhere within the building.

File cards


Name
Type Picture Size 720 x 576
Disk Twin
Owner SYSTEM
Date wed 15-Nov-1996 14:08:41
Created wed 10-May-1995 17:58:25
on disk Sam Maguire Pictbox A
Categories INSET president
Expiry Date none
Copyright
Entry Date none
Description inset made using united states flag with Bill Clinton airbrushed through. The copyright information for the photograph of Bill Clinton is ....
IN THIS
DESCRIPTION AREA YOU CAN TYPE ANY HELPFUL INFORMATION BELONGING TO YOUR GRAPHIC - the above is an example of this This applies to pictures.

Configurable protection

Systems connected on an Open Picturenet network freely exchange images and Paintbox is configurable to allow protection where necessary. In an unrestricted network, each user can read and write images to and from the internal disk of every other system as well as from the Picturebank. An individual machine can be configured to prevent write access or read and write access if required.

Picturemail

An image exchange feature, Picturemail is controlled by the receiver and remains a true background task, ensuring uninterrupted operation during transfers - extremely important in time-critical on-air situations. It is often used to send graphics to Quantel's stills stores, Picturebox® and Pictureframe®.

With Picturemail the receiver can select any of the following controls:

- From

Permits receiver to define from whom images can be received

- *Number range*
Range within which mailed images must be numbered (used in conjunction with Picturebox's numbering protocol)

- *Unnumbered*
Permits the reception of images without a number

- *Replace*
Permits received images to adopt the number of an existing image

The sender can also choose to send images to more than one station at a time. Mailing functions are quickly achieved with a simple box selection - there are no complex menus to navigate.

Third-party exchange
Open Picturenet also incorporates the standard TCP/IP protocol to permit the transfer of images between Quantel devices and third-party systems such as PCs.

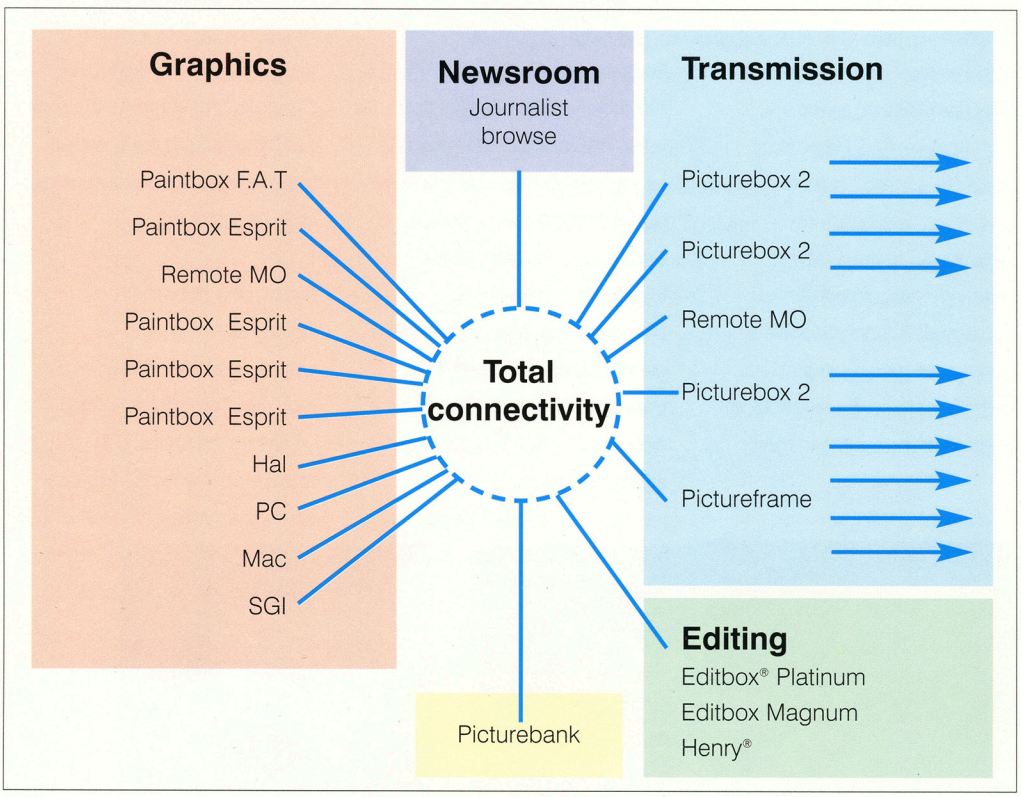
Using the FTP command set, TIFF, Targa, VPB images and TrueType fonts can be transferred to and from the Quantel system. A third-party system can log on to the Quantel system, search the library and then retrieve or store an image.

Uncompressed 24 or 32 bit TIFF or Targa files are supported. Transcoding between these formats and Quantel's internal VPB format is performed by the Open Picturenet interface. TrueType fonts are stored on the Quantel system in their native format.

In addition to the transfer of pictures, browse images and metadata - the file card information - can also be transferred to third-party systems allowing database consistency in large multi-media operations.

Java on Quantel
Paintbox Esprit and Paintbox F.A.T accept the Quantel Java virtual machine option allowing them to run third-party applications. Java on Quantel offers endless opportunities for customisation. Users can call on any developer to write special applications for their systems either to aid production or to add features. Applications written so far are as diverse as lightning effects and a menu-controllable external video router.

In a broadcast environment, Open Picturenet networking provides superb integration of all systems.



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2. **Seriously** powerful animations

Section 2

2.1 Introduction

Dynamic animations

Paintbox F.A.T offers all the features and tools of the world's best graphics system combined with a full animation toolset - everything needed to create stunning graphic animations over live action.

Paintbox F.A.T is sure to revolutionise a market pioneered by Quantel's earlier system, Harriet.

Full Animation Toolset

All of the features of Paintbox Esprit are loaded into this new animating Paintbox as well as 5,000 frames of video storage, optional audio and a stills library for 8,000 images.

Open Picturenet and analogue/ serial digital inputs/outputs are standard, so Paintbox F.A.T is ready to be integrated into any graphics environment.

Clip Desk

2.2 Creating animations

Clip Desk

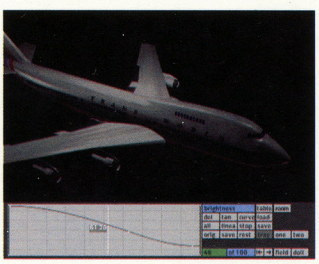
The Clip Desk is designed to make video manipulation as easy as working with stills. A black and white matte may be added to a clip as a moving Stencil simply by picking it up and dropping it on top of the clip. Multiple copies can be made by highlighting one corner of the clip on the desk and dragging a copy away. This can be used to ensure that the original material is never lost.

PasteUp

With Paintbox F.A.T, the PasteUp menu provides 99 layers of keyframeable DVE. Graphic elements, text and cutouts, can be keyframed over a moving background to produce outstanding animated results.

3D perspective animations and Contour effects are also keyframeable so, for example, a flat map of the earth can morph into a globe. Edge effects provide facilities for cropping or blurring the edge of a cutout. Because this is keyframeable, a text reveal can be produced by keyframing the right crop from 100% through to 0%. This could, of course, be used to reveal any graphic item.

Keyframeable effects



The Attach and Global features become very important within the PasteUp menu of Paintbox F.A.T, because complex constructions such as cubes and pyramids can be keyframed to rotate.

Keyframeable Effects

Paintbox F.A.T allows all of the tools within Paintbox's Effects menu to be keyframed. This enables video clips to be subdued for use as a background, but with subtle transitions. Keyframeable Directional Blur allows a clip to be gently blurred to provide a background, or by keyframing the direction of the blur, superb lens effects can be produced.

Keyframeable Colour Correction allows transition effects; for example, a clip could be keyframed to change from normal video to sepia.

Keyframeable Curves

One of the most useful applications of keyframeable curves is animating graphs.

A set of points can be defined at the start of the clip and then alternative point positions defined at various keyframes, producing a graph which moves through several positions.

2.3 Assembling clips

Clips menu

The Clips menu provides access to the video clips stored within the system and offers a wealth of controls for their manipulation.

Clips can be trimmed visually to suit the required piece, edited together with straightforward butt edits or dissolved.

Stretch and Repeat

Stretch allows clips to be lengthened or shortened as required. This opens up the creative potential for slow-motion or time-lapse effects. Repeat enables a single frame to be repeated any number of times without taking up any extra storage.

Seriously powerful animations - continued

This can be used to make a clip from a single frame or freeze a frame, for example in intros or outros where it is necessary to hold on a still frame for several seconds before and after the animated piece.

Tracking

Paintbox F.A.T's tracking facility, Auto Lock Follow, is extremely useful in the production of graphics for news and sports. ALF allows moving detail to be tracked, so a graphic element can be locked to the detail. Multi-point tracking enables elements moving through 3D space to be tracked in the same way. ALF can also be used to stabilise a shot - eradicating camera shake.

Designers also use ALF to:

- Obliterate detail which must not be broadcast (for instance, a licence plate)
- Indicate an area of interest within a moving clip
- Insert a graphic element such as a logo into a clip

Video control

Because Paintbox F.A.T specialises in animations and designers need complete control over transferring acquired footage, video inputs and outputs are standard. Video can be recorded into the system from any VTR or live video input.

Timecode controls are available to enable frame-accurate input from a VTR. Alternatively on-the-fly recording is achieved with a simple pen tap to start and stop recording.

Once recorded, the clip can be trimmed and saved in the library. When required, the finished piece can be played out live or recorded back to VTR using timecode for accurate placement. Video input and output is via component analogue or serial digital interfaces.

Archive

Clips stored within Paintbox F.A.T, can be archived to tape. This process stores the raw footage with set-ups and elements so that an entire job can be recreated at a later date, perhaps with different footage - for example, sports results where the same format is required and the same animation is used every week. Instead of trying to recreate the animation each time, the designer could simply load the previous archive and insert the new details. This would also allow different designers to work on the piece and always reproduce the same look.

Tracking

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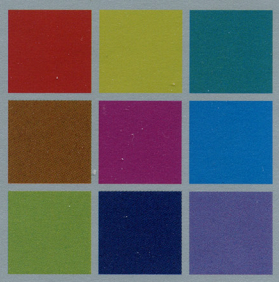
3. **Paintbox Esprit** Configuration



Section 3

3.1 Features

Paintbox Esprit's complete toolset comprises:

- Layout Table image management system
- Pressure-sensitive paint, chalk, air and custom brushes
- Randomness and modulation of brush size, density and colour
- Graphic shapes - lines, rectangles, circles, ellipses
- Comprehensive effects - keyer, colour corrector, mosaic, blur, explode, transform and texture
- Special brushes including copy, shade, crisp, blur
- 1,085 vector fonts plus TrueType Font import
- 4,000-image stills store
- 99 layer paste-up facility with 3D perspective
- Contour picture bending, global control, attach across all layers
- Cell animation
- Macro and sequence automation
- Java-enabled
- Open Picturenet networking capability
- Full file card information and multi stills browse capability

3.2 Options

Video input option

Paintbox Esprit has an optional video input for live video grabs, recording from a VTR or a caption camera. For added efficiency, VTR control software is included. Component analogue and serial digital video and key inputs are provided.

Digital output option

For integration into a non-networked environment, Paintbox Esprit has an optional video output which provides component analogue video and key outputs and serial digital video and key outputs.

Remote magneto optical option

Network access to MO cartridges for any number of networked devices. Networking the MO drive also means that it can be positioned where it is most needed - next to the designer.

3.3 Technical specification

■ *General*

- Integral 4 Gbyte fixed disk
- Artist station including Grip, keyboard, pen and tablet
- 4:3 and 16:9 switchable
- 525/60 and 625/50 switchable

■ *Dimensions*

Width	19" 482mm rack mounting
Height	3U 5.25" 132mm
Depth	23.6" 600mm
Weight	18.1kg

■ *Power*

60Hz	50Hz
110v	240v
3A	1.5A

■ *Tablet*

Width	22.25" 560mm
Height	3" 75mm
Depth	18" 460mm

■ *Sampling system*

ITU-R 601 4:2:2:4

■ *Video connections*

Inputs

1 x component analogue video and key input*

2 x serial digital video and key inputs*

1 x analogue reference

Outputs

1 x RGB monitor

2 x component analogue video and key outputs*

2 x serial digital outputs with associated key*

■ *Network connections*

Open Picturenet Interface c/w 100Base-Tx RJ-45 Ethernet connection

■ *Serial control ports*

3 x assignable serial ports (2 x RS422, 1 x RS232)

**options*

4. **Paintbox F.A.T** Configuration

Section 4

4.1 Features

Paintbox F.A.T's full animation toolset includes:

- 99 layer keyframed paste up facility with 3D perspective
- Essential editing facilities
- 5,000 video frame storage
- 1,2 and 4 point ALF tracking
- Realtime playout/VTR control
- 16:9 DTV ready
- Pressure-sensitive paint, chalk, air and custom brushes
- Randomness and modulation of brush size, density and colour
- Graphic shapes - lines, rectangles, circles, ellipses
- Comprehensive effects - keyer, colour corrector, mosaic, blur, explode, transform and texture
- Special brushes including copy, shade, crisp, blur
- 1,085 vector fonts plus TrueType Font import
- Contour picture bending, global control, attach across all layers
- Cell animation
- Macro and sequence automation
- Java-enabled
- Open Picturenet networking capability
- Comprehensive library management with full file card information and multi-stills browse capability
- Analogue and digital inputs and outputs

4.2 Options

Audio

For those who require audio for a guide track, a voice-over or for special effects, the audio option provides digital stereo audio input and output capability. 48 kHz AES/EBU audio can be assigned to a clip in the same way as a Stencil by picking it up and dropping it on the relevant clip.

Remote magneto optical option

Network access to MO cartridges for any number of networked devices. Networking the MO drive also means that it can be positioned where it is most needed - next to the designer.

4.3 Technical specification

■ *General*

- Integral 4 Gbyte fixed disk
- Additional 4 Gbyte network visible disk
- Artist station including Grip, keyboard, pen and tablet
- 4:3 and 16:9 switchable 525/60 and 625/50 switchable

■ *Dimensions*

Width	19" 482mm rack mounting
Height	8U 14" 355mm
Depth	25" 640mm
Weight	60kg

■ *Power*

60Hz	50Hz
110v	240v
7A	3.5A

■ *Tablet*

Width	22.25" 560mm
Height	3" 75mm
Depth	18" 460mm

■ *Sampling system*

ITU-R 601 4:2:2:4

■ *Video connections*

Inputs

1 x component analogue video and key input

3 x serial digital video inputs

1 x analogue reference

1 x serial digital reference

Outputs

1 x RGB monitor

4 x serial digital video outputs

1 x component analogue video output

■ *Network connections*

Open Picturenet Interface c/w 100Base-Tx RJ-45 Ethernet connection

■ *Audio*

Outputs

2 x AES/EBU digital stereo*

Inputs

1 x AES/EBU digital stereo*

■ *Serial control ports*

1 x Tablet RS422

1 x VTR RS422

2 x diagnostic ports RS422/RS232 (normally switched to RS422)

1 x Printer RS232

*options

5. **Paintbox** terminology

Section 5

The following explains some Paintbox-specific terms

Attach
Ability to join layers in PasteUp so that they appear as one. An example would be joining six square cutouts to produce a box.

Auto-lock-follow
Quantel's tracking capability for animations. One, two or four point ALF can be used to apply graphics to a moving object or to remove camera shake.

Brush Stamp
Shape used by the system to describe a brush.

Clip Desk
Area of system for Clip management in Paintbox F.A.T.

Colour Fettle
Graph-based colour corrector used mainly for effects. (Paintbox Esprit only).

Colour Map
Enables images to be altered based on the colours in the palette mixing area. Often used to subdue a detailed background.

Colour-space
Means of describing a colour.
In Paintbox, colour can be described in RGB (Red, Green, Blue), YUV (luminance and colour difference) or HSL (Hue, Saturation, Luminance) colour spaces.

Curves
Flexi-curves which can be freely manipulated to describe any shape. As well as being used for geometric purposes they are useful for outlining detail for stencil creation. In Paintbox F.A.T, these are keyframeable.

Custom Brushes
User-definable brush shapes which, once defined, can be used in the same way as any standard brush (paint, chalk and airbrush).

Cutout
A single layer in PasteUp, so called because it is often an element which has been cut or isolated from its background. Text layers are also referred to as cutouts.

File Card
Data sheet which accompanies all Paintbox files. The file card allows a wealth of data about a particular image to be attached.

Global
Ability to change the attributes of all layers in Paste-Up simultaneously.

Grid
User-definable cross-hatch of lines which can be used to accurately position graphic elements during composition.

Grip
Hand unit which provides many shortcut functions to aid Paintbox operation.

Grow
Stencil function which allows the boundaries of a generated stencil to be shrunk or grown to eradicate spill or haloing.

Hicon
Method of generating a stencil using the luminance values in an image. This can be useful for producing logos from black and white recorded material.

Layout Table
Paintbox's visual library where elements of work-in-progress can be laid out for quick access. The Layout Table is accessible from any Paintbox menu.

Macro
Enables menu commands to be recorded, replayed and edited.

Palette
Where colours can be selected from the image, mixed and deposited for later use. Various colour-space controls are also available.

PasteUp
Provides the controls for multi-layer compositions.

Pick Up
Pick Up allows colours to be picked from the image each time the brush is applied - a valuable aid for retouching. Vary adjusts brush colour to match the image during a stroke.

Restore
Parts of a background image can be restored through a foreground image using any brush.

Sequence
Facility on Paintbox for recording pen strokes for later replay.

Stencil
Electronic mask used to protect parts of the image from any process.
The Stencil also defines an area of an image to be cut from its background.

Transform
Feature where the image is pixelated and then redrawn using the current brush. Numerous effects such as frosted glass can be achieved in this way.

Tray
Buffer which facilitates the transfer of images from the main Painting store to the Layout Table. Images in the 'tray' can also be used as background images for restore.

Wash
Process where the chrominance (colour) values of an image are changed to the brush colour without altering the luminance values.

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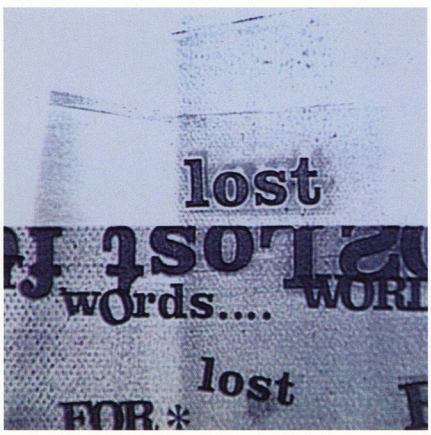
K-CAL USA

Preventa Venezuela

SBS Australia

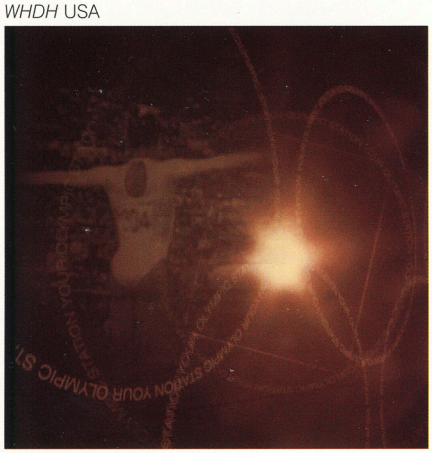
BBC UK



BBC UK

NHK Japan

WHDH USA



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